The heating element 22 has a coaxial structure, with a textile core 23, a first conductor 24 would helically on the core 23, a first insulating material or inner insulator 25, a second conductor 26 wound helically on the inner insulator 25, a second insulating material or outer insulator 27. The textile core 23 is preferably made from polyester thread. The first and second insulating material 25 and 27 have respective melting points of between 100 and 160 °C and greater than 170 °C; preferably, the first insulating material 25 is polyethylene with a melting point of about 120°C, whereas the second insulating material 27 is PVC with a melting point of about 180 °C.

The conductors 24 and 26 are preferably made from heat-resistant material, i.e. material having variable resistivity (in particular increasing) with the temperature, for example consisting of a 99/1 copper-cadmium alloy. They have respective first terminals 24a and 26a inside the sheet 21 and respective second terminals 24b and 26b protruding outside the sheet 21. The first terminals 24a and 26a are electrically joined, through direct connection 28. The second terminals 24b and 26b are, on the other hand, enclosed in a jack 29, mounted on the heating element 22 and accessible from outside the sheet 21.

With particular reference to figure 3, the power supply/control unit 40 comprises - according to an embodiment of the invention - a power supply group 41, which in turn comprises a plug 42, possibly a general switch 43, and an on-off indicator light 44. The power supply/control unit 40 also comprises a cut-off group 45, which in turn comprises a first operating switch 46 and a second emergency switch 47, mounted in series on an electric supply line of the operative unit 20; both of such switches are electronic, i.e. they are SCR, TRIAC or MOSFET or equivalent components which maintain the conduction

conditions in the presence of a predetermined pilot signal.

The power supply/control unit also comprises a microprocessor 50, an adjustable temperature setting group 51, a signal indicator light 52, an emergency intervention group 53, as well as a connector 59 at the end of the electric line 48 and suitable for the removable coupling with the jack 29 of the operative unit 20. The microprocessor 50 is connected to the other elements of the power supply/control unit 40 so as to receive input signals from the power supply line 48 and from the adjustable temperature setting group 51 and so as to send output signals (or rather control signals) towards the first operating switch 46, towards the emergency intervention group 53 and towards the signal indicator light 52. Such connections are made through *per se* known circuit elements and according to known methods (not described in detail nor illustrated in the figures), so as to obtain the operative characteristics which are illustrated hereafter.

The blanket 10, to be able to be used, must be connected to the electric mains through the plug 42 and must be assembled joining the operative unit 20 to the power supply/control unit 40 through the coupling of the jack 29 with the connector 59.

The switching on of the blanket 10 is obtained by acting upon the general switch 43, if present; in a simplified version that is not illustrated such a switch can be left out, and thus switching on takes place directly with the connection of the plug 42 to the electric mains. If the adjustable temperature setting group 51 is present, the user sets the desired temperature acting upon such a group; this element can also be left out in a simplified version that is not illustrated, and then the temperature adjustment is simply fixed. With the blanket 10 switched on, the on-off indicator light 44 turns on.

In normal operation, the microprocessor 50 controls the operating switch 46, keeping it first in closed state; in the same way, the microprocessor 50 sends a signal to the emergency intervention group 53 which in turn keeps the emergency switch 47 in closed state. The operative unit 20 and in particular the heating element 22 is supplied with electric power.

In this step, the microprocessor 50 receives as input from a measurement block 49 a signal from the line 48 dependent upon the current flowing there, thus directly correlated with the electric resistance of the charge applied, or rather of the heating element 22; since the conductors 24 and 26 of the heating element 22 are heat-conductive, the aforementioned signal carries information directly linked to the temperature of the heating element 22 to the microprocessor 50. Such a signal from the measurement block 49 can, for example, be the voltage value at the ends of a very low precision resistance (for example 1 ohm) connected in series on the line 48 so as to be crossed by the current flowing there; when the blanket 10 is switched on, current flows in such a resistance and therefore a voltage is present, which decreases as the impedance in the heat-resistant heating element 22 increases, i.e. as the temperature of the heating element itself increases. Based upon such a signal, therefore, the microprocessor 50 is able to manage opening and closing cycles of the operating switch 46, so as to stabilise the temperature of the heating element 22 and thus of the operative unit 20.

The microprocessor 50 can include inside of it (or rather in its management logic) a timer, to automatically interrupt operation after a certain period of time, which may be predetermined or possibly adjustable, leaving the switch 46 open after such a period.

The adjustable temperature setting group 51 can advantageously be functionally associated with the on-off

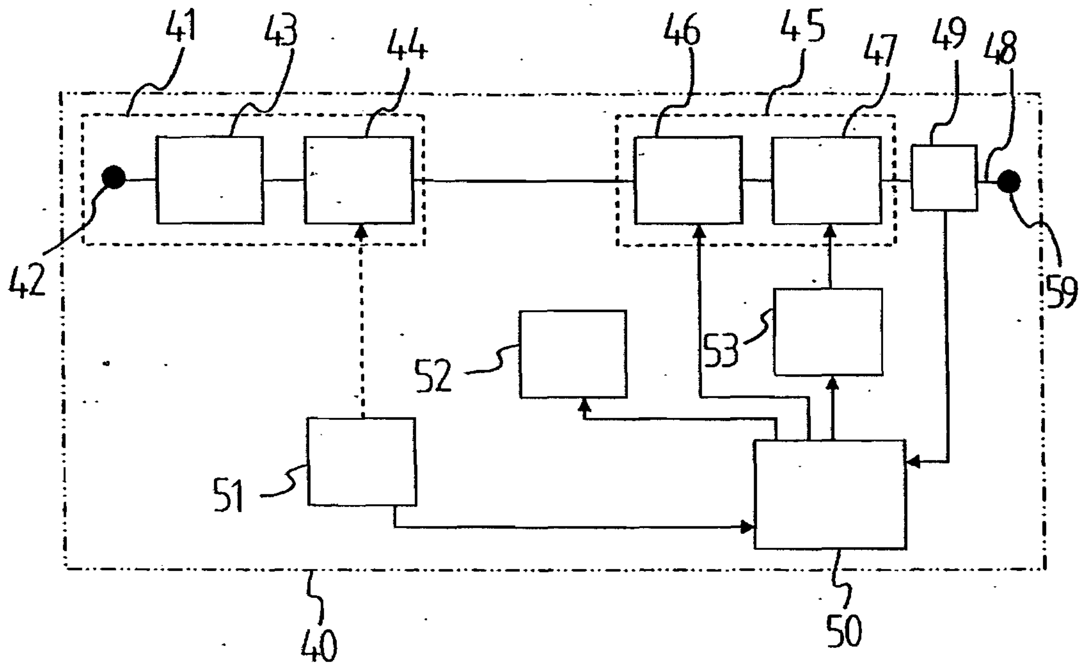
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Fig. 3

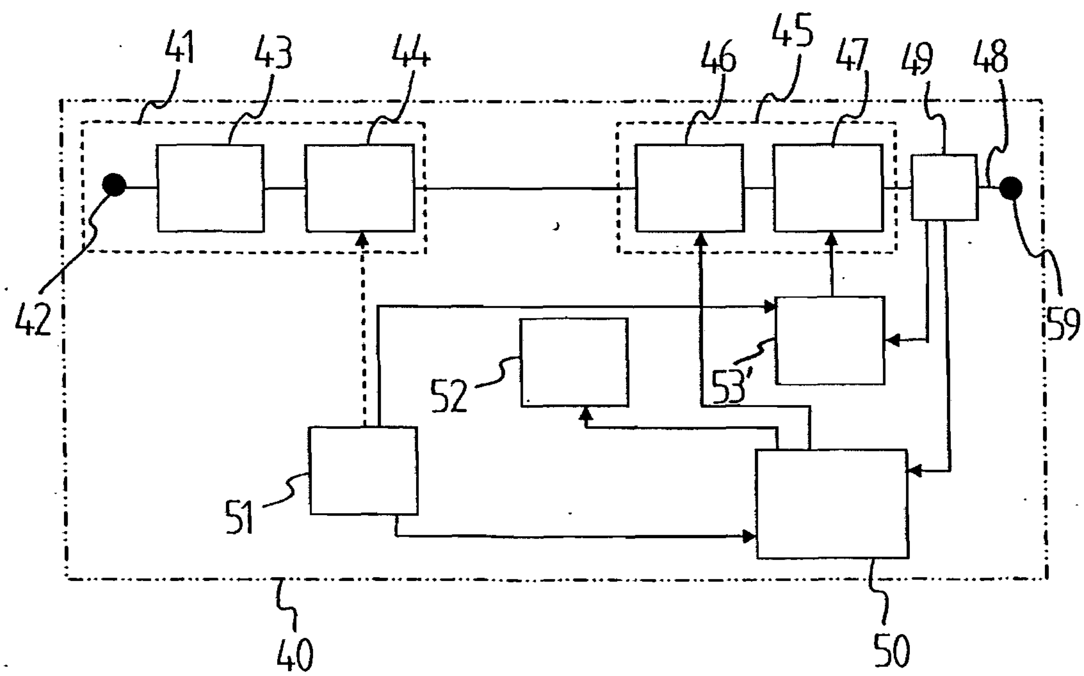
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Fig. 4